"Reinventing Engineering Education Post IT Party: Should We have a Paradigm Shift to Core?

By
Dipteek Parmar
Associate Professor & Head
Department of Civil Engineering
Harcourt Butler Technological Institute
Kanpur
E mail: d_parmar@rediffmail.com

June 8th 2015, HBTI Kanpur

HISTORICAL BACKGROUND-THE RECENT PAST

- Up to 1980s- Conventional engineering.
- 1980s- Arrival of Personal Computer.
- 1991- Liberalization policy announced.
- 1995-2010 : IT Revolution.

- The IT industry has been the amazing job engine for the past two decades.
- It provided a ticket to prosperity for millions of young Indians;
- Children of security guards, drivers, and peons catapulted themselves and their families firmly into the middle class in a single generation, something no one would have imagined.
- For two decades, the fastest way to increase the income- job with an IT firm.

- Hundreds of engineering colleges mushroomed overnight churning out over a million graduates every year to feed the insatiable demand of the India's IT sector.

- The industry lifted all the boats including the mediocore ones.

POSITIVES

- Overall I-Q level of students has gone up.
- Job scenario has improved as new Job options-IT, Management, event management, consultancy services, Investment banking, advertising, media etc. came up.
- There is a desire among the students to improve communication skills- 2 or 3rd year onwards
- Pay packages have improved considerably.

- It made:
  “Great”
  “Outstanding”
  “Laudable”
  “Unimaginable”
  Contribution to the growth of India
  and
  took India to great Heights

- But Now the Party seems coming to an end/heading to a downfall.
- Or optimistically speaking, not likely to maintain the same pace.

Why?

- A combination of slowing demands, rising competition, and technological changes means that companies will hire far fewer people.
- And this is not a temporary blip–this is the new normal.

- The automation might displace a third of jobs within next 3 years – Wipro CEO
- Infosys aims to increase the revenue per employee by 50% – Infosys CEO (Mr. Sikka)
- NASSCOM– The chronically optimistic industry Association admits that companies will hire far fewer people

Impact on Core Engineering

It has bred a lot of mediocrity.

- What impact this mediocrity has made on the core engineering branches or subjects?
- Specifically, on the students from the core branches-Civil, Mechanical, Electrical etc.?
- What could be done to tackle this mediocrity?

Changing perception of students to core engineering branches

- Every coin has two sides.
- Likewise every good thing has bad ones attached to it and IT sector is no exception.
- The IT boon has lead to changes in the society that has brought a sea of difference in the attitude and approach of students.

- Nothing wrong with students' intelligence and intellect level.
- But the obsession with digital technology and social networking does not leave them with much time or inclination for studies.

- Majority of the students in good institutes now own a lap top- seldom use for academic/curriculum pursuits.
- In fact they have become over reliant on lap top and internet that they use it for preparing assignments, Seminar report and B.Tech projects.
-
- In some of the branches, the use of books for preparing assignments is an outdated thing now
- Many of those going to IT Sector don't bother to get B.Tech Project Reports printed.

- The author's personal interaction with the students during lectures, viva, evaluation etc. has revealed that:

- Even in final year the students do not know basic computer skills for technical report writing.

- Say writing equations, drawing graphs and editing text in word.

- Although they are quite good at formatting the computers, downloading movies, songs, cracking software, chating on social networking sites etc.

- They have read a course on NMCP but cannot even draw a flow chart, forget about writing codes/programs.

- Since the students are getting IT jobs through campus placement
- It has lead to a sense of complacency/self satisfaction amongst the students in terms of approach towards attending classes, studying hard.
- As well as the teachers-in terms of their teaching and evaluation.

- Even the most mediocore students in a class secures a first class.
- In fact, the college administration also feels quite happy and satisfied that their students are getting job offers.
- Those who don't get placed through campus go for IBPS, CGL, SSC, LIC.- outdated jobs for engineers in 1980s and 1990s.

- The IT boon has adversely affected the enrollment in post graduate courses (M.Tech, PhD) as the students find the IT job preposition much more lucrative.

- Even if one enrolls for M.Tech programme, many of them leave it in between thereby doing a disservice to the nation.

- After all the engineering students owe a lot to this nation.

- This phenomenon has resulted in shortage of faculty members with post graduate qualification, which as per the new AICTE regulations is the minimum eligibility.

- Even there is a big question mark on their quality of recent crop of post graduates being churned out from private colleges.

- Because of the poor quality of teachers, engineers graduate by writing essays and stories and not by solving numerical problems.

- The point I am trying to hit upon is clear.
- It has lead to mediocrity.
- What should be done then?

- Can we, the faculty members, engineers, academicians, policy makers and administrators do something fruitful to ensure that the core engineering regain its charm?

- All of us have a herculean task at hand-Can we do it? If yes-then how?

- Embrace reality and recognize that the game has changes for the Good.

- The reforms in engineering education have a long but slow history.
- Sadly, nothing significant has changed on the ground in last two decades or so.

SUGGESTIONS

Suggestions

- a) depending upon requirement of a branch remove some of the subjects from first year and add important practical oriented core subjects
- b) increase the duration of B.Tech if subjects can not be removed

- c) discourage students from joining IT bandwagon blindly,
- d) switch over to grading system, where only top 15 to 20 per cent get an A grade, bottom 10 to 15 per cent are given F (Fail).

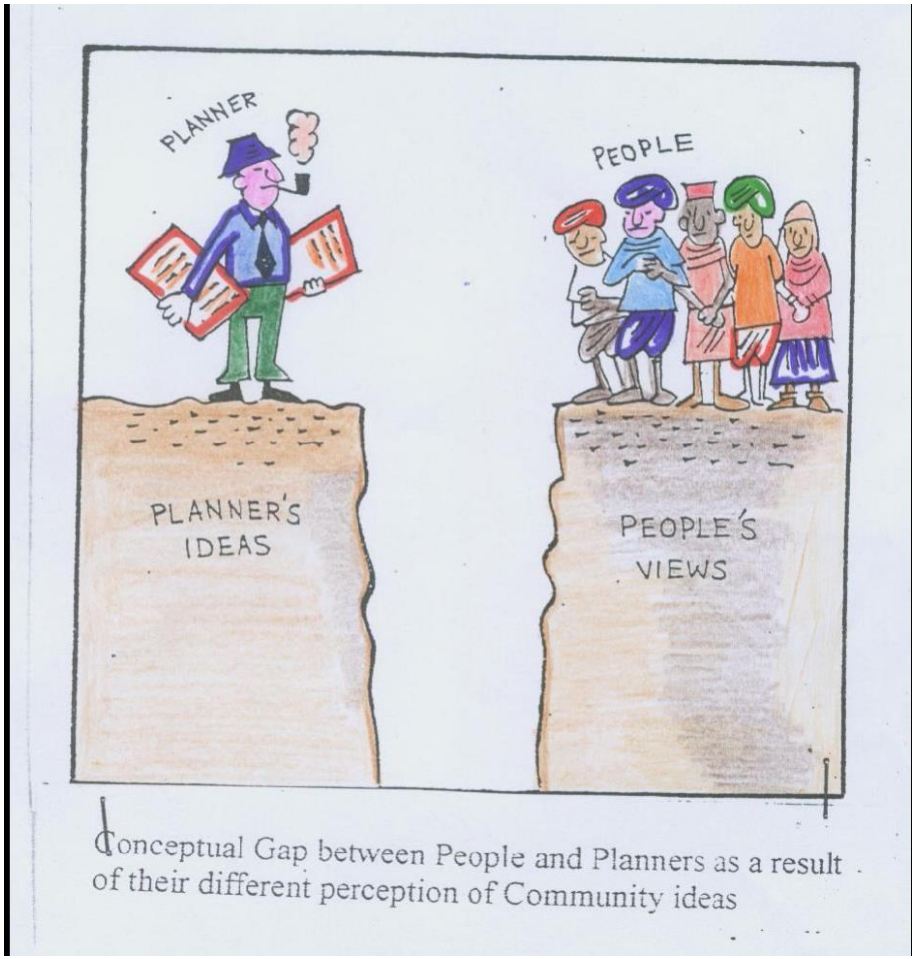
- e) Relax the provision of mandatory 30% non engineering subjects (applied sciences, humanities, other engineering) as given by professional bodies like AICTE, IEEE etc.

- f) Introduce integrated courses and dual degree programmes etc.

- g) Make PG and research more lucrative

- Lastly, it is emphasized that there has to be a coordinated effort involving the policy makers, administrators, educationalists, teachers and IT professionals.

Bridging the Gap



Conceptual Gap between People and Planners as a result of their different perception of Community ideas

- It is strongly suggested that:

- The academia (faculty, directors and educationalist) and other watchdogs like AICTE, UGC, NBA etc. should provide the vision and directions to ensure that the core engineering revitalizes and helps the society in the long run.

- It is opined that solutions discussed in this paper will pave the way towards making India a force to reckon with in this technology driven global world.

- Otherwise, the future of engineering education, especially the core branches seems bleak.

- *“The views expressed in this paper are purely author’s personal opinion and are not meant to offend anyone”.*
- *In case if it does, heartfelt apologies.*

Thank You Very Much